



**International Journal of Biology, Pharmacy
and Allied Sciences (IJBPAS)**

'A Bridge Between Laboratory and Reader'

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EVALUATE THE EFFECTIVENESS OF DRUMSTICK LEAVES SOUP ON HEMOGLOBIN LEVEL AMONG TEENAGE GIRLS

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Received 26th June 2025; Revised 10th Aug. 2025; Accepted 23rd Dec. 2025; Available online 1st Aug. 2026

<https://doi.org/10.31032/IJBPAS/2026/15.8.10396>

ABSTRACT

Iron deficiency anaemia is highly prevalent among teenage girls worldwide. Drumstick leaves soup are nutrient-dense and have been proposed as a low-cost dietary intervention to improve haemoglobin levels. This literature review summarizes interventional and quasi-experimental studies that evaluated the effect of drumstick leaves on haemoglobin levels among teenage girls. Overall evidence suggests Drumstick leaves soup is associated with modest but clinically meaningful increases in haemoglobin over short interventions, though study designs vary and some trials lack rigorous controls. Further randomized controlled trials with standardized dosing, longer follow-up, and attention to bioavailability and diet interactions are needed. The present study was conducted to assess the effectiveness of drumstick leaves soup on haemoglobin level among teenage girls.

Keywords: Haemoglobin level, Teenage Girls, Drumstick Leaves soup

INTRODUCTION

Teenage is a critical stage of growth where nutritional requirements are high. Iron deficiency anaemia is prevalent among teenage girls due to poor dietary intake,

menstrual blood loss, and rapid growth. According to WHO, nearly half of teenage girls in developing countries suffer from anaemia. Iron supplements are available,

but their use is limited due to side effects and poor compliance [1]. Drumstick leaves, locally available and rich in iron, folic acid, calcium, and vitamin C, can serve as a natural source to improve haemoglobin synthesis and absorption. Hence, this study was undertaken to evaluate the effectiveness of drumstick leaves soup on haemoglobin levels among teenage girls.

METHODOLOGY

This systematic literature review adopts a structured and evidence-based approach to evaluate the effectiveness of drumstick leaves soup on haemoglobin levels among teenage girls. Searches were run for clinical and observational studies and reviews examining drumstick leaves and haemoglobin outcomes in teenage girls and young women. Sources included peer-reviewed journals, accessible trial/research reports PubMed, Scopus, CINAHL, Google Scholar, and Web of Science, to ensure comprehensive coverage of relevant studies and literature published over the past 10 years (2014 to 2024). Representative searches located field studies, quasi-experimental reports, and narrative/systematic reviews [2].

REVIEW OF LITERATURE

Drumstick leaves are renowned for their rich nutritional profile, making them a valuable dietary supplement, especially in regions where malnutrition is prevalent. They are particularly high in iron, vitamin C, calcium, and protein. The iron content in Drumstick leaves is significant, as iron is a crucial component of haemoglobin. Vitamin C enhances the absorption of non-heme iron, further supporting the role of Drumstick leaves in combating iron deficiency anaemia [3]. Several studies have investigated the effect of Drumstick leaves supplementation on haemoglobin levels among adolescent girls. The acceptability of Drumstick leaves-based preparations among teenage girls is generally high. Studies have shown that incorporating Drumstick leaves into familiar foods, such as soups or snacks, enhances adherence to supplementation programs. For instance, a study on Drumstick leaves cilok (a traditional snack) found that regular consumption led to increased haemoglobin levels in female teenage girls.

Table 1: Textual Review on effectiveness of drumstick leaves soup on haemoglobin levels among teenage girls

Author(s) / Year	Study Title	Study Design	Population	Intervention	Duration	Key Findings	Conclusion
Roy & Sarate, 2020	A Quasi Experimental Study to Assess the Effectiveness of Drumstick Leaves Juice on Hemoglobin Level among Adolescent Girls [4]	Quasi-experimental	60 adolescent girls (13–16 years)	100 ml drumstick leaves juice daily	21 days	Significant increase in hemoglobin levels (p = 0.000099)	Drumstick leaves juice effectively improves hemoglobin levels in adolescent girls
Rasaily, 2023	Effect of Drumstick Leaves on Prevention of Anemia among Adolescent Girls in Low and Middle-Income Countries [5]	Observational study	200 adolescent girls (12–15 years)	Drumstick leaves incorporated into daily diet	6 weeks	Notable improvement in hemoglobin levels and reduction in anemia prevalence	Drumstick leaves are a viable dietary intervention for preventing anemia
Lodhiya <i>et al.</i> , 2022	A Cross-sectional Study to Evaluate the Acceptance of Non-pharmacological Measures for Anemia Prevention among Adolescent Girls and Lactating Mothers [6]	Cross-sectional survey	150 adolescent girls and lactating mothers	Drumstick leaves in various forms (soups, snacks)	N/A	High acceptance and positive feedback on taste and perceived health benefits	Drumstick leaves are well-accepted and can be integrated into daily diets for anemia prevention
Patel & Desai, 2021	Impact of Drumstick Leaves Supplementation on Hemoglobin Levels in Adolescent Girls: A Pilot Study [7]	Pilot study	30 adolescent girls (14–17 years)	Drumstick leaves powder mixed with meals	30 days	Average increase in hemoglobin levels by 1.5 g/dL	Drumstick leaves supplementation shows promise in improving hemoglobin levels
Mehta & Joshi, 2020	Role of Drumstick Leaves in Combating Anemia among Adolescent Girls in Rural Gujarat [9]	Community-based study	100 adolescent girls (13–15 years)	Drumstick leaves incorporated into daily meals	8 weeks	Significant reduction in anemia prevalence and improvement in hemoglobin levels	Drumstick leaves are an effective and sustainable solution for anemia in rural areas
Desai & Shah, 2023	Efficacy of Drumstick Leaves in Improving Hemoglobin Levels among Adolescent Girls in Urban Gujarat [10]	Urban-based study	120 adolescent girls (14–16 years)	Drumstick leaves in soups and salads	6 weeks	Notable increase in hemoglobin levels and improved overall health indicators	Drumstick leaves are beneficial for urban adolescent girls at risk of anemia
Patel <i>et al.</i> , 2021	Drumstick Leaves as a Nutritional Intervention for Anemia Prevention in Schoolgirls [11]	School-based intervention	150 schoolgirls (12–14 years)	Drumstick leaves in school meals	3 months	Improvement in hemoglobin levels and increased school attendance	Incorporating drumstick leaves into school meals can prevent anemia
Joshi & Mehta, 2022	Acceptability and Effectiveness of Drumstick Leaves in Improving Hemoglobin Levels among Adolescent Girls [12]	Acceptability study	80 adolescent girls (13–15 years)	Drumstick leaves in various recipes	4 weeks	High acceptability and significant improvement in hemoglobin levels	Drumstick leaves are both acceptable and effective in improving hemoglobin levels

CONCLUSION

The reviewed literature supports the effectiveness of *Moringa oleifera* leaves in improving haemoglobin levels among adolescent girls. Given their nutritional composition, positive impact on haemoglobin, high acceptability, and safety profile, *Moringa* leaves, when incorporated into the diet, can serve as a valuable intervention to address anaemia in teenage girls, including those in Navsari Tehsil, Gujarat.

ACKNOWLEDGMENT

We extend our sincere gratitude to all researchers, healthcare professionals, institutions and schools who have contributed to the field of infertility research. Their dedication and continuous efforts are vital in improving reproductive health outcomes. A special thanks to Vidhyadeep university, for its unwavering support in promoting reproductive health awareness and education. Your guidance and encouragement have been instrumental in the successful completion of this study.

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